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EXAMINER

MADDEN, GREGORY VINCENT

ART UNIT	PAPER NUMBER
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2622

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/602,187	<b>Applicant(s)</b> CUTLER, ROSS	
	<b>Examiner</b> Gregory V. Madden	<b>Art Unit</b> 2622	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22 is/are allowed.
- 6) ☒ Claim(s) 1-17, 19-21 and 23-28 is/are rejected.
- 7) ☒ Claim(s) 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>JP 08-108689</u>                       |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 15, 2007 has been entered.

### ***Response to Arguments***

Applicant's arguments with respect to **claims 1, 3, 5, 6, 11, 15, 19, and 23-25** have been considered but are moot in view of the new ground(s) of rejection.

In regard to the above claims, the Applicant contends that the Keenan et al reference (U.S. Pub. 2004/0201698) fails to teach a single camera for capturing images of a whiteboard wherein a boom is positioned above a whiteboard and the camera is adjusted such that the tilt angle of the lens with respect to the sensor plane of the camera is zero to capture an in focus uniform resolution image of the entire whiteboard. Without conceding that Keenan fails to teach a single camera for capturing images of a whiteboard (which the Examiner believes is taught in Para. [0063]), the Examiner agrees that Keenan does not explicitly teach the newly-amended limitation of the camera being adjusted such that the tilt angle of the lens with respect to the sensor plane of the camera is zero. However, as will be set forth in further detail below, the Examiner is now relying on the Shigehiro et al. (JP 08-108689) reference to teach the limitations of the above claims. Thus, the Applicant's arguments in view of the Keenan are considered moot in view of the new ground of rejection citing Shigehiro et al.

Next, considering **claims 12-14**, Applicant attempts to traverse the Examiner's Official Notice, stating "*The applicants do not believe that improving a whiteboard image by white-balancing the image of the whiteboard to provide an image of the whiteboard with uniform white background color, removing shadows on the whiteboard in the image, and by segmenting non-whiteboard images from the image is well known in the art. The applicants respectfully request that such a reference be cited*" (See Remarks, Pg. 4). However, "to adequately traverse such a finding, an applicant must specifically point out the supposed errors in the Examiner's action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art". See MPEP §2144.03 and 37 CFR 1.111(b). Applicant's traversal amounts to a mere allegation of patentability over the common knowledge/well-known in the art, to which, the MPEP states, "A general allegation that the claims define a patentable invention ... would be inadequate." Again see MPEP §2144.03. Because the Applicant has not specifically pointed out the supposed errors in the Examiner's action, including stating why the noticed fact is not considered to be common knowledge or well-known in the art, the Examiner finds the traversal to be inadequate. Further, the Examiner believes that the Applicant teaches in the Specification that the limitations of claim 12-14 would have been well known to one of ordinary skill in the art. Noting Pg. 23, Lines 13-14 of the Specification, it is stated that "[a]ny conventional method of performing such whiteboard enhancement processing can be used" (emphasis added), wherein the "whiteboard enhancement processing" refers to white balancing the image of the whiteboard, removing shadows on the whiteboard in the image, and segmenting non-whiteboard images from the image. Seeing as the Applicant states that such whiteboard enhancement processing is conventional, the Examiner considers that whiteboard enhancement processing was well-known in the art at the time of the invention. For these reasons, as well as the reasons set forth above with respect to claim 1, the Examiner maintains the rejection of claims 12-14.

As for **claims 2, 4, 7, 16, 17, 20, 21, 26, and 27**, the Applicant contends that Keenan in view of Rodriguez Jr. (U.S. Pat. 6,179,426) does not teach the limitations that the view camera is adjusted on the boom so that the camera's depth of field covers the desired portion(s) of the whiteboard, the tilt angle of the camera's sensing surface is approximately parallel to the plane of the whiteboard, and the distance between the center of projection of the camera and the camera's sensing surface is adjusted to provide optimum focus. Specifically, Applicant states that *"...Rodriguez does not teach the applicants' claimed single camera for capturing images of a whiteboard wherein a boom is positioned above a whiteboard and the camera is adjusted such that the tilt angle of the lens with respect to the sensor plane of the camera is zero to capture an in focus uniform resolution image of the entire whiteboard"* (See Remarks, Pg. 12). Applicant further states that *"although Rodriguez may teach a camera 756 there is nothing taught in Rodriguez to indicate that this camera is positioned so as to capture an in focus uniform resolution of an entire image"*. As will be set forth below, the Examiner is now relying on the Shigehiro reference, not Keenan, to teach the Applicant's claimed single camera that is adjusted such that the tilt angle of the lens with respect to the sensor plane of the camera is zero to capture an in focus uniform resolution of the entire whiteboard, and thus whether or not Rodriguez teaches this limitation is considered moot. Therefore, the rejections of claims 2, 4, 7, 16, 17, 19-21, 26, and 27 are rejected in view of Shigehiro et al. in view of Rodriguez, Jr. et al.

Next, considering **claims 8-10**, the Applicant again argues that Keenan fails to teach a camera for capturing images of a whiteboard wherein a boom is positioned above a whiteboard to capture an in focus uniform resolution image of the entire whiteboard, and that neither the Rodriguez nor the Addeo reference (U.S. Pat. 5,335,011) teach such a camera to overcome the alleged deficiencies of the combination (See Remarks, Pgs. 13-14). However, as is set forth above with respect to claims 1, 3, 5, 6, 11, 15, 19, and 23-25, the Examiner believes that the Shigehiro reference does teach a single camera for capturing in focus uniform resolution images of the entire whiteboard, wherein the camera is mounted on a boom positioned

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above a whiteboard such that the tilt angle of the lens with respect to the sensor plane of the camera is zero in order to capture an in focus uniform resolution image of the entire whiteboard. Thus, the Examiner believes Applicant's arguments regarding claims 8-10 are now moot in view of the new ground of rejection.

Finally, considering **claim 28**, the Applicant again argues that Keenan fails to teach a camera for capturing images of a whiteboard wherein a boom is positioned above a whiteboard to capture an in focus uniform resolution image of the entire whiteboard, and that neither the Rodriguez nor the Branc reference (U.S. Pat. 6,122,865) teach such a camera to overcome the alleged deficiencies of the combination (See Remarks, Pgs. 15-16). However, as is set forth above with respect to claims 1, 3, 5, 6, 11, 15, 19, and 23-25, the Examiner believes that the Shigehiro reference does teach a single camera for capturing in focus uniform resolution images of the entire whiteboard, wherein the camera is mounted on a boom positioned above a whiteboard such that the tilt angle of the lens with respect to the sensor plane of the camera is zero in order to capture an in focus uniform resolution image of the entire whiteboard. Thus, the Examiner believes Applicant's arguments regarding claim 28 are now moot in view of the new ground of rejection.

Please refer to the rejections of claims 1-17, 19-21, and 23-28 below.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1, 3, 15, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Shigehiro et al. (JP 08-108689).**

First, considering **claim 1**, the Shigehiro reference teaches a camera system for capturing images of a whiteboard comprising a boom (camera bearing bar 302) positioned above a whiteboard (feltboard 1), a single view camera (electronic camera 4) mounted to the distal end of the boom and adjusted such that the tilt angle of the lens (wide angle lens 401) with respect to the sensor plane (of CCD sensor 403) of the camera is zero (i.e. lens and sensor plane are parallel) so as to capture an in focus uniform resolution image of the entire whiteboard. Note in Fig. 4 that the plane of the wide angle lens (401) and the plane of the CCD sensor (403) are parallel to one another, and thus the tilt angle of the lens with respect to the sensor plane is zero. Further, Fig. 4 shows that the CCD sensor (403) captures an in focus uniform resolution image of the entire whiteboard (1) by using only the bottom half of wide angle lens (401) to eliminate the distortion of a “leaning” optical axis. Please refer further to Fig. 3, and Paras. [0007-0011].

As for **claim 3**, the limitations of claim 1 are taught above, and the Shigehiro reference further discloses that the system also comprises a mounting device (attachment section 301) for mounting the boom (302) to be positioned above the whiteboard. See Figs. 1 and 3, as well as Para. [0008].

Considering **claim 15**, the Shigehiro reference teaches a process for capturing images of a whiteboard comprising positioning a boom (camera bearing bar 302) above a whiteboard (feltboard 1), mounting a single view camera (electronic camera 4) to the distal end of the boom so as to capture images of a desired portion of the whiteboard, and adjusting the camera such that the tilt angle of the lens (wide angle lens 401) with respect to the sensor plane (of CCD sensor 403) of the camera is zero (i.e. lens and sensor plane are parallel) before capturing the images so as to capture an in focus uniform resolution image of the entire whiteboard. Note in Fig. 4 that the plane of the wide angle lens (401) and the plane of the CCD sensor (403) are parallel to one another, and thus the tilt angle of the lens with respect to the

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sensor plane is zero. Further, Fig. 4 shows that the CCD sensor (403) captures an in focus uniform resolution image of the entire whiteboard (1) by using only the bottom half of wide angle lens (401) to eliminate the distortion of a “leaning” optical axis. Please refer further to Fig. 3, and Paras. [0007-0011].

Finally, considering **claim 25**, the Shigehiro reference teaches a camera system for capturing images of a whiteboard comprising a single view camera (electronic camera 4) positioned (on camera bearing bar 302) and adjusted such that the tilt angle of the lens (wide angle lens 401) with respect to the sensor plane (of CCD sensor 403) of the camera is zero (i.e. lens and sensor plane are parallel) so as to capture an in focus uniform resolution image of a whiteboard (feltboard 1). Note in Fig. 4 that the plane of the wide angle lens (401) and the plane of the CCD sensor (403) are parallel to one another, and thus the tilt angle of the lens with respect to the sensor plane is zero. Further, Fig. 4 shows that the CCD sensor (403) captures an in focus uniform resolution image of the entire whiteboard (1) by using only the bottom half of wide angle lens (401) to eliminate the distortion of a “leaning” optical axis. Please refer further to Fig. 3, and Paras. [0007-0011].

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 2, 4, 7, 16, 17, 19-21, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigehiro et al. (JP 08-108689) in view of Rodriguez, Jr. et al. (U.S. Pat. 6,179,426).**



Next, considering **claim 2**, the limitations of claim 1 are taught above by Shigehiro, and the Shigehiro reference does teach that the single view camera (4) is positioned on the boom so as to cover the portion(s) of the whiteboard it is desired to capture as an image in Paras. [0007-0011]. What Shigehiro does not specifically teach is that the view camera is adjusted on the boom so that the camera's depth of field covers the desired portion(s) of the whiteboard, the tilt angle of the camera's sensing surface is approximately parallel to the plane of the whiteboard, and the distance between the center of projection of the camera and the camera's sensing surface is adjusted to provide optimum focus. However, the Rodriguez reference teaches a camera (756) that is adjusted so that the depth of field covers the desired portion of the whiteboard, the tilt angle is approximately parallel ( $< 22$  degree angle) to the plane of the whiteboard, and the distance between the center of projection of the camera and the camera's sensing surface is adjusted to provide optimum focus (See Fig. 13, Col. 8, Lines 1-9, Col. 10, Lines 51-59, and Col. 13, Lines 8-27). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the boom and camera system having depth of field and focus adjustments, as taught by Rodriguez, with the boom and camera system of Shigehiro. One would have been motivated to do so because by adjusting the capture angles and focus positions of the camera, the whiteboard image captured will be a high-resolution image with no unnecessary objects (e.g. a wall, control panel, etc.) being present in the final image viewed by the users.

Next, considering **claim 4**, the limitations of claim 3 are taught above by Shigehiro, and while Shigehiro does show that the mounting device does enable the boom to be positioned above the whiteboard in Figs. 1 and 3, Shigehiro does not explicitly teach that the mounting device mounts on a rail at the top portion of the whiteboard. However, referring to Fig. 3, of the Rodriguez reference, Rodriguez shows that a mounting device (hinge unit 110) is mounted on a rail at the top of the whiteboard (102), wherein the hinge unit 110 holds a boom (arm 108).

In regard to **claim 7**, the limitations of claim 1 are again taught above by Shigehiro, but Shigehiro does not disclose the use of a microphone device for capturing audio synchronized with each image captured by the view camera. However, the Rodriguez reference teaches a microphone (microphone 760) that captures audio synchronized to each image captured by the view camera (camera 756) to allow for videoconferencing or data conferencing (See Fig. 13 and Col. 13, Lines 8-27).

Considering **claim 16**, again the Shigehiro reference teaches the limitations of claim 15 above, but Shigehiro does not specifically disclose that the focal length that will provide uniform resolution and in-focus images of the whiteboard is computed, and that the camera's focal length is set to the computed focal length. However, the Rodriguez reference does show that the focal length is computed and the camera (and projector's) focal length is set to the computed focal length in Col. 10, Lines 42-59.

As for **claim 17**, again the limitations of claim 15 are taught above, and as is similarly disclosed with respect to claim 16, Shigehiro does not specifically disclose that the focal length that will provide uniform resolution and in-focus images of the whiteboard is computed, and that the camera's focal length is set to the computed focal length. However, the Rodriguez reference does show that the focal length is computed and the camera (and projector's) focal length is automatically set to the computed focal length in Col. 10, Lines 42-59.

Considering **claim 19**, the limitations of claim 15 are taught above by Shigehiro, but Shigehiro fails to disclose that the process includes sending the image to a server that broadcasts or records the images. However, the Rodriguez reference teaches in Col. 13, Lines 8-27 that captured image data is broadcast through a server (i.e. videoconferencing).

Regarding **claim 20**, the Shigehiro reference teaches the limitations of claim 15, but Shigehiro does not does not disclose the process of capturing audio synchronized with each image captured by the view camera. However, the Rodriguez reference teaches a microphone (microphone 760) that captures

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audio synchronized to each image captured by the view camera (camera 756) to allow for videoconferencing or data conferencing (See Fig. 13 and Col. 13, Lines 8-27).

Considering **claim 21**, the limitations of claim 20 are taught above by Shigehiro in view of Rodriguez, and the Rodriguez reference teaches in Col. 13, Lines 8-27 that synchronized audio is broadcast along with image data (i.e. videoconferencing).

In regard to **claim 26**, the limitations of claim 25 are taught above by the Shigehiro reference, and the Shigehiro reference does teach that the single view camera is positioned on the boom so as to cover the portion(s) of the whiteboard it is desired to capture as an image in Paras. [0007-0011]. What Shigehiro does not specifically teach is that the view camera is adjusted on the boom so that the camera's depth of field covers the desired portion(s) of the whiteboard, the tilt angle of the camera's sensing surface is approximately parallel to the plane of the whiteboard, and the distance between the center of projection of the camera and the camera's sensing surface is adjusted to provide optimum focus. However, the Rodriguez reference teaches a camera (756) that is adjusted so that the depth of field covers the desired portion of the whiteboard, the tilt angle is approximately parallel (< 22 degree angle) to the plane of the whiteboard, and the distance between the center of projection of the camera and the camera's sensing surface is adjusted to provide optimum focus (See Fig. 13, Col. 8, Lines 1-9, Col. 10, Lines 51-59, and Col. 13, Lines 8-27).

As for **claim 27**, again the limitations of claim 25 are taught above by the Shigehiro reference, but Shigehiro does not teach that the view camera is mounted on a table and positioned so as to have a view of the whiteboard. However, the Rodriguez reference shows in Fig. 2 that the view camera (or projector) can be mounted on a table and positioned so as to have a view of the whiteboard.

**Claims 5-6, 11-14, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigehiro et al. (JP 08-108689) in view of Keenan et al. (U.S. Pub. 2004/0201698).**

Next, considering **claim 5**, the limitations of claim 3 are taught above by Shigehiro, and while Shigehiro does show that the mounting device does enable the boom to be positioned above the whiteboard in Figs. 1 and 3, Shigehiro does not explicitly teach that the mounting device mounts on a surface above the surface the whiteboard is mounted to. However, noting the Keenan reference, Keenan teaches that the mounting device (wall mount 50) mounts on a surface above the surface of the whiteboard is mounted. Note in Fig. 1 and Para. [0044] that the boom and wall mount are mounted on the wall above the midpoint of the whiteboard. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated mounting the mounting device above the surface of the whiteboard, as taught by Keenan, with the mounting device of Shigehiro. One would have been motivated to do so because, as Shigehiro teaches in Para. [0009], it is advantageous for the boom to be mounted above the whiteboard (or feltboard) so as to prevent the user from contacting the boom or camera when using the whiteboard, and thus mounting the boom to a mounting device above the surface of the whiteboard would ensure that the user does not contact the boom when the system is in use.

As for **claim 6**, again the limitations of claim 3 are taught above, and Keenan further discloses that more than one type of device for mounting the boom to be positioned above the whiteboard, and wherein the types of devices for mounting the boom to be positioned above the whiteboard are interchangeable. See Figs. 2 and 8, Para. [0045], and Paras. [0060-0061].

Regarding **claim 11**, the limitations of claim 1 are taught above by Shigehiro, and while Shigehiro does disclose that image enhancements to the whiteboard image can be made (via operation means 507, as taught in Para. [0012], Shigehiro does not specifically disclose that the system comprises a computer to enhance the whiteboard image. However, the Keenan reference teaches that the camera system comprises a computer (central processing unit 100) to enhance the whiteboard image. Please refer to Fig. 5 and Paras. [0050-0052].

In regard to **claims 12-14**, Shigehiro in view of Keenan teaches the limitations of claim 11 above, and Keenan further discloses in Para. [0052] that the CPU 100 processes the captured image to ensure that only high contrast color pen strokes appear in the image. What Keenan does not specifically teach is that the CPU enhances the whiteboard image by white-balancing the image of the whiteboard to provide an image of the whiteboard with uniform white background color, removing shadows on the whiteboard in the image, and by segmenting non-whiteboard objects from the image of the whiteboard. However, Official Notice is taken that white-balancing, shadow removal, and segmenting non-target objects is common and well-known in the art. One would have been motivated to include such processing features in the CPU processing of Keenan so as to allow for only the high contrast color pen strokes on the white background to be viewable in the image presented to the user or users, thereby negating many undesirable defects and objects in the captured image. Further, as the Applicant has failed to properly traverse the Official Notice taken by the Examiner in the previous office action, the limitations of claims 12-14 are hereby considered to be Admitted Prior Art.

In regard to **claim 23**, the Shigehiro reference teaches a process for capturing images of a whiteboard comprising positioning a boom (camera bearing bar 302) above a whiteboard (feltboard 1), mounting a single view camera (electronic camera 4) to the distal end of the boom so as to capture images of a desired portion of the whiteboard, and adjusting the camera such that the tilt angle of the lens (wide angle lens 401) with respect to the sensor plane (of CCD sensor 403) of the camera is zero (i.e. lens and sensor plane are parallel) before capturing the images so as to capture an in focus uniform resolution image of the entire whiteboard. Note in Fig. 4 that the plane of the wide angle lens (401) and the plane of the CCD sensor (403) are parallel to one another, and thus the tilt angle of the lens with respect to the sensor plane is zero. Further, Fig. 4 shows that the CCD sensor (403) captures an in focus uniform resolution image of the entire whiteboard (1) by using only the bottom half of wide angle lens (401) to eliminate the distortion of a “leaning” optical axis. Please refer further to Fig. 3, and Paras. [0007-0011].

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What Shigehiro does not specifically teach is that more than one single view camera can be mounted and adjusted to capture a uniform resolution, in focus image of the entire whiteboard. However, the Keenan reference discloses a process of capturing images of a whiteboard, in this instance from multiple vantage points, comprising positioning more than one view camera (cameras 70a-70c) at a fixed distance (the length of the elongated boom 52) from a whiteboard so as to view the whiteboard, and adjusting each of the view cameras so as to capture images of the whiteboard. See Figs. 1 and 2, Paras. [0043-0046], and Para. [0063]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the use of more than one camera to capture images of the whiteboard, as done by Keenan, with the capturing of in focus uniform resolution whiteboard images, as done by Shigehiro. One would have been motivated to do so because in using more than one camera to capture whiteboard images, the user is able to ensure the capture of an image having an unobstructed view with a uniform resolution.

Regarding **claim 24**, the limitations of claim 23 are taught above, and Keenan further teaches that the images are simultaneously captured with each of the view cameras (70a-70c) and that an image that provides an unobstructed view of the whiteboard is selected from among the simultaneously captured images. Please refer to Para. [0046].

**Claims 8, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigehiro et al. (JP 08-108689) in view of Rodriguez, Jr. et al. (U.S. Pat. 6,179,426), further in view of Addeo et al. (U.S. Pat. 5,335,011).**

Next, considering **claim 8**, Shigehiro in view of Rodriguez teaches the limitations of claim 7, but the combination does not specifically disclose that the microphone device (760) is a microphone array. However, the Addeo reference teaches a teleconferencing system (including video cameras and microphones) using a microphone array (microphone array 150), as shown in Fig. 2 and Col. 4, Lines 40-

65. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the microphone array of Addeo with the microphone device of Shigehiro in view of Rodriguez. One would have been motivated to do so because by using a plurality of microphones in a microphone array configuration, only noise from the direction of the speaker or presenter will be picked up, thereby eliminating ambient noise, room reverberation, and acoustic coupling, as Addeo teaches in Col. 3, Lines 20-26.

As for **claim 9**, the limitations of claim 8 are disclosed above, and the Addeo reference further teaches that the audio captured by the microphone array (150) is used for sound source localization, as taught in Col. 4, Line 60 – Col. 5, Line 13.

In regard to **claim 10**, again the limitations of claim 7 are taught by Shigehiro in view of Rodriguez, but the combination does not specifically teach that the microphone device is used to improve the sound quality of a speaker by filtering sound from only the direction of the speaker. However, the Addeo reference teaches a microphone device (microphone array 150) that improves the sound quality of a speaker by filtering sound from only the direction of the speaker, as again taught in Col. 4, Line 60 – Col. 5, Line 13.

**Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shigehiro et al. (JP 08-108689) in view of Rodriguez, Jr. et al. (U.S. Pat. 6,179,426), further in view of Branc et al. (U.S. Pat 6,122,865).**

Finally, regarding **claim 28**, Shigehiro in view of Rodriguez teaches the limitations of claim 27 above, but the combination does not teach that the view camera is mounted on a wall and positioned so as to have a view of the whiteboard. However, the Branc reference discloses a camera (40) mounted on a wall (third side wall partition 34) and positioned so as to have a view of the whiteboard (display screen 20 and interior screen surface 21), as is taught in Col. 6, Lines 8-30 and Fig. 3. It would have been obvious

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to one of ordinary skill in the art at the time the invention was made to have incorporated the camera mounted on a wall, as taught by Branc, with the camera system of Shigehiro in view of Rodriguez. One would have been motivated to do so because by mounting the camera on a wall, the camera's field of view will less likely be blocked completely by a presenter, as may happen with a camera mounted on a table, thereby enabling the camera to capture more useful images. Further, mounting the camera on the wall is an efficient use of available space.

***Allowable Subject Matter***

**Claim 22** is allowed.

**Claim 18** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding both **claims 18 and 22**, the prior art was not found to teach or reasonably suggest the limitation that the focal length is computed by inputting the various parameters of the whiteboard, the distance between the whiteboard and the center of projection of the camera, the height of the image sensor, and the vertical distance between the center of projection of the camera and the top of the whiteboard (along with the tilt angle of the image sensor), into the claimed equation to determine focal length.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."



***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory V. Madden whose telephone number is 571-272-8128. The examiner can normally be reached on Mon.-Fri. 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc Yen Vu can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gregory Madden  
August 9, 2007

  
NGOC-YEN VU  
SUPERVISORY PATENT EXAMINER